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EDWARDS & ANGELL, LLP
101 Federal Street
Boston, MA 02110

EXAMINER	
EGAN, SCOTT T	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/643,396	TAN ET AL.	
	Examiner	Art Unit	
	Scott Egan	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/18/2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: towards the end of the background of the invention on page 2 it states "the overall fabrication process more laborious and *time-timing*. *Time-timing* should be changed to time-consuming.

Appropriate correction is required.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. **Claims 1-8** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 10/660,092 in view of Farrell et al (US 2005/0052568).

This is a provisional obviousness-type double patenting rejection.

Application (A) # 10/643,396	**Copending Application (B) # 10/660,092**
1. A digital image capturing module assembly, which comprises: a lens holder, which has one side defined as a focusing plane, and which is formed with a plurality of aligning posts on the periphery of the focusing plane and is further formed with **a plurality of stair-like bulged portions respectively beside the aligning posts**; a photosensitive printed circuit board, which is formed with a plurality of aligning holes corresponding to the aligning posts on the lens holder, and which is mounted on the lens holder by fitting the aligning	1. A digital image capturing module assembly, which comprises: a lens holder, which has one side defined as a focusing plane, and which is formed with a plurality of aligning posts on the periphery of the focusing plane and is further formed with **a ring plane between the focusing plane and the aligning posts that completely surrounds the focusing plane**; **an adhesive layer, which is coated over the periphery of the focusing plane and over the ring plane**; and a photosensitive printed circuit board,

holes thereof against the aligning posts on the lens holder, with the respective tips of the aligning posts on the lens holder being each melted into a bolting structure to secure the photosensitive printed circuit board firmly in position on the lens holder, **with an undergap existing between the photosensitive printed circuit board and the lens holder due to the stair-like bulged portions acting as a stopper against the photosensitive printed circuit board**; and a light-impenetrable sealing layer, **which is infiltrated in the undergap between the photosensitive printed circuit board and the lens holder** to provide a sealed light- impenetrable effect at the junction between the photosensitive printed circuit board and the lens holder.	which is formed with a plurality of aligning holes corresponding to the aligning posts on the lens holder, and which is mounted on the lens holder by fitting the aligning holes thereof to the aligning posts on the lens holder; wherein the respective tips of the aligning posts on the lens holder are each melted into a bolting structure to secure the photosensitive printed circuit board firmly in position on the lens holder; and wherein the firmly-secured photosensitive printed circuit board forcefully presses against the adhesive layer to be thereby adhered firmly in position on the lens holder with the adhesive layer providing a sealed light-impenetrable effect at the junction between the photosensitive printed circuit board and the lens holder.
2. The digital image capturing module assembly of claim 1, wherein the photosensitive printed circuit board is a CCD-based photosensitive device.	2. The digital image capturing module assembly of claim 1, wherein the photosensitive printed circuit board is a CCD-based photosensitive printed circuit board.
3. The digital image capturing module assembly of claim 1, wherein the photosensitive printed circuit board is a CMOS-based photosensitive device.	3. The digital image capturing module assembly of claim 1, wherein the photosensitive printed circuit board is a CMOS-based photosensitive printed circuit board.
4. The digital image capturing module assembly of claim 1, wherein the aligning posts on the lens holder are made of plastics.	4. The digital image capturing module assembly of claim 1, wherein the aligning posts on the lens holder are made of plastics.
5. A method for fabricating a digital image capturing module, comprising: preparing a lens holder, which has one side defined as a focusing plane, and which is formed with a plurality of aligning posts on the periphery of the focusing plane and is further formed **with a plurality of stair-like bulged portions respectively beside the aligning posts**; preparing a photosensitive printed circuit	5. A method for fabricating a digital image capturing module, comprising: preparing a lens holder, which has one side defined as a focusing plane, and which is formed with a plurality of aligning posts on the periphery of the focusing plane and is further formed **with a ring plane between the focusing plane and the aligning posts that completely surrounds the focusing plane**;

board which is formed with a plurality of aligning holes corresponding to the aligning posts on the lens holder; mounting the photosensitive printed circuit board onto the lens holder by fitting the aligning holes in the photosensitive printed circuit board against the aligning posts on the lens holder, **with an undergap existing between the photosensitive printed circuit board and the lens holder due to the stair-like bulged portions acting as a stopper against the photosensitive printed circuit board**; melting the respective tips of the aligning posts on the lens holder so as to transform the respective tips of the aligning posts into a bolting structure to secure the photosensitive printed circuit board firmly in position on the lens holder; and dispensing a curable and flowable adhesive agent against **the undergap between the photosensitive printed circuit board and the lens holder, allowing the curable and flowable adhesive agent to self-infiltrate into and substantially fill up the undergap** through capillary attraction to provide a sealed light-impenetrable effect at the junction between the photosensitive printed circuit board and the lens holder.	preparing a photosensitive printed circuit board which is formed with a plurality of aligning holes corresponding to the aligning posts on the lens holder; **coating an adhesive layer over the periphery of the focusing plane and over the ring plane**; and; mounting the photosensitive printed circuit board in position on the lens holder by fitting the aligning holes in the photosensitive printed circuit board to the aligning posts on the lens holder; and melting the respective tips of the aligning posts on the lens holder so as to transform the respective tips of the aligning posts into a bolting structure to secure the photosensitive printed circuit board in position on the lens holder as well as to allow the photosensitive printed circuit board to forcefully press against the adhesive layer to allow the photosensitive printed circuit board to be adhered firmly in position on the lens holder with the adhesive layer providing a sealed light-impenetrable effect at the junction between the photosensitive printed circuit board and the lens holder.
6. The method of claim 5, wherein the photosensitive printed circuit board is a CCD- based photosensitive printed circuit board.	6. The method of claim 5, wherein the photosensitive printed circuit board is a CCD-based photosensitive printed circuit board.
7. The method of claim 5, wherein the photosensitive printed circuit board is a CMOS-based photosensitive printed circuit board.	7. The method of claim 5, wherein the photosensitive printed circuit board is a CMOS-based photosensitive printed circuit board.
8. The method of claim 5, wherein the aligning posts on the lens holder are made of plastics.	8. The method of claim 5, wherein the aligning posts on the lens holder are made of plastics.

For Claims 1 and 5, although the conflicting claims are not identical, they are not patentably distinct from each other because as seen in the chart above Claims 1 and 5 of App. A differs from claims 1 and 5 of App. B with respect to the stair-like bulge portions forming an undergap between the PCB and the lens holder in which the adhesive is poured. However, Claims 1 and 5 of App. A do not provide an adhesive layer, which is coated over the periphery of the focusing plane and over the ring plane.

In the same field of endeavor, Farrell et al. teach a chip sealing method where a LCP material is sealed to a substrate like the PCB would be sealed to the lens holder. Farrell et al. further teach that the cover may be hermetically sealed to the substrate 20 (column 5 lines 19-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the sealant used to hermetically seal the parts in Farrell et al. as the sealant used in App. A in order to provide an air tight seal that would stop dust or other unwanted debris from affecting the image sensor.

As for Claims 2 and 6 of App. A, they are identical to Claims 2 and 6 of App. B.

As for Claims 3 and 7 of App. A, they are identical to Claims 3 and 7 of App. B.

As for Claims 4 and 8 of App. A, they are identical to Claims 4 and 8 of App. B.

4. **Claims 1, 2, 4, 5, 6, and 8** are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 3, 6, 7, and 8 of copending Application No. 10/618,434 in view of Meek et al. (US 6,741,286).

This is a provisional obviousness-type double patenting rejection.

Application (A) # 10/643,396	Copending Application (C) # 10/618,434
1. A digital image capturing module assembly, which comprises: a lens holder, which has one side defined as a focusing plane, and which is formed with a plurality of aligning posts on the periphery of the focusing plane **and is further formed with a plurality of stair-like bulged portions respectively beside the aligning posts**; a photosensitive printed circuit board, which is formed with a plurality of aligning holes corresponding to the aligning posts on the lens holder, and which is mounted on the lens holder by fitting the aligning holes thereof against the aligning posts on the lens holder, with the respective tips of the aligning posts on the lens holder being each melted into a bolting structure to secure the photosensitive printed circuit board firmly in position on the lens holder, with **an undergap existing between the photosensitive printed circuit board and the lens holder due to the stair-like bulged portions acting as a stopper against the photosensitive printed circuit board**; and a light-impenetrable **sealing layer, which is infiltrated in the undergap between the photosensitive printed circuit board and the lens holder** to provide a sealed light- impenetrable effect at the junction between the photosensitive printed circuit board and the lens holder.	1. A digital image capturing module assembly, which comprises: a lens holder, which has one side defined as a focusing plane, and which is formed with a plurality of aligning posts on the periphery of the focusing plane; **a washer, which is mounted on the periphery of the focusing plane of the lens holder**; and a photosensitive printed circuit board, which is formed with a plurality of aligning holes corresponding to the aligning posts on the lens holder, and which is mounted **on the washer** on the lens holder by fitting the aligning holes thereof to the aligning posts on the lens holder; wherein the respective tips of the aligning posts on the lens holder are each melted into a bolting structure to secure the photosensitive printed circuit board firmly in position on the lens holder; and wherein the firmly-secured photosensitive printed circuit board forcefully presses against the washer to thereby allow the washer to provide a sealed light-impenetrable effect at the junction between the photosensitive printed circuit board and the lens holder.
2. The digital image capturing module assembly of claim 1, wherein the photosensitive printed circuit board is a CCD-based photosensitive device.	2. The digital image capturing module assembly of claim 1, wherein the photosensitive printed circuit board is a CCD-based photosensitive printed circuit board.
4. The digital image capturing module assembly of claim 1, wherein the aligning	3. The digital image capturing module assembly of claim 1, wherein the aligning

posts on the lens holder are made of plastics.	posts on the lens holder are made of plastics.
5. A method for fabricating a digital image capturing module, comprising: preparing a lens holder, which has one side defined as a focusing plane, and which is formed with a plurality of aligning posts on the periphery of the focusing plane **and is further formed with a plurality of stair-like bulged portions respectively beside the aligning posts**; preparing a photosensitive printed circuit board which is formed with a plurality of aligning holes corresponding to the aligning posts on the lens holder; mounting the photosensitive printed circuit board onto the lens holder by fitting the aligning holes in the photosensitive printed circuit board against the aligning posts on the lens holder, with **an undergap existing between the photosensitive printed circuit board and the lens holder due to the stair-like bulged portions acting as a stopper against the photosensitive printed circuit board**; melting the respective tips of the aligning posts on the lens holder so as to transform the respective tips of the aligning posts into a bolting structure to secure the photosensitive printed circuit board firmly in position on the lens holder; and dispensing a curable and flowable adhesive agent against the undergap between the photosensitive printed circuit board and the lens holder, **allowing the curable and flowable adhesive agent to self-infiltrate into and substantially fill up the undergap through capillary attraction** to provide a sealed light-impenetrable effect at the junction between the photosensitive printed circuit board and the lens holder.	6. A method for fabricating a digital image capturing module, comprising: preparing a lens holder which has one side defined as a focusing plane, and which is formed with a plurality of aligning posts on the periphery of the focusing plane; preparing a photosensitive printed circuit board which is formed with a plurality of aligning holes corresponding to the aligning posts on the lens holder; **mounting a washer on the periphery of the focusing plane of the lens holder**; mounting the photosensitive printed circuit board in position **on the washer** on the lens holder by fitting the aligning holes in the photosensitive printed circuit board to the aligning posts on the lens holder; melting the respective tips of the aligning posts on the lens holder so as to transform the respective tips of the aligning posts into a bolting structure to secure the photosensitive printed circuit board in position on the lens holder as well as to allow the photosensitive printed circuit board **to forcefully presses against the washer to thereby allow the washer** to provide a sealed light-impenetrable effect at the junction between the photosensitive printed circuit board and the lens holder.
6. The method of claim 5, wherein the	7. The method of claim 6, wherein the

photosensitive printed circuit board is a CCD- based photosensitive printed circuit board.	photosensitive printed circuit board is a CCD-based photosensitive printed circuit board.
8. The method of claim 5, wherein the aligning posts on the lens holder are made of plastics.	8. The method of claim 6, wherein the aligning posts on the lens holder are made of plastics.

For Claims 1 and 5, although the conflicting claims are not identical, they are not patentably distinct from each other because as seen in the chart above Claims 1 and 6 of App. A differs from claims 1 and 5 of App. C with respect to the stair-like bulge portions forming an undergap between the PCB and the lens holder in which the adhesive is poured. However, Claims 1 and 5 of App. A do not provide a washer, which is placed between the PCB and the lens holder.

In the same field of endeavor, Meek et al. teach an integrated camera and illumination device with a metal sleeve 15 that holds the lens assembly 16 (as seen in Fig. 1a) and is attached to printed circuit board 10 (column 2 lines 5-15). Meek et al. further teach the use of a gasket 13 which is fixed to overlay the CMOS sensor 12 in between the metal sleeve and the PCB.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the gasket found in Meet et al. in between the printed circuit board and lens holder found in App. A in order to prevent dust from penetrating into the front surface of the image sensor.

As for Claims 2 and 6 of App. A, they are identical to Claims 2 and 7 of App. C.

As for Claims 4 and 8 of App. A, they are identical to Claims 3 and 8 of App. C.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. **Claim 1, 4, 5 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ting (US 6,665,455)** in view of **Farrell et al. (US 6,977,187)** and further in view of **Miyake (US 7,084,922)**.

Consider **claim 1**, Ting explicitly teaches "a digital image capturing module assembly (image-sensing module, Fig. 2), which comprises:

a lens holder (top cover 100 and bottom cover 200, Fig. 2), which has one side defined as a focusing plane, and which is formed with a plurality of aligning posts on the periphery of the focusing plane (the surrounding of the bottom cover 200 is provided with a plurality of positioning pegs 203, 204... column 3, lines 41-43, Fig 3) and is further formed with a plurality of stair-like bulged portions (pressing straps 400 and 401 Fig. 4) respectively beside the aligning posts;

a photosensitive printed circuit board (soft-type circuit board 600 in combination with the image-sensing transistor Fig. 3), which is formed with a plurality of aligning holes corresponding to the aligning posts on the lens holder (Fig. 3 shows the circuit board with holes that correspond to the posts on the holder and further line up with the positioning holes 103 and 104 column 3 lines 39-41), and which is mounted on the lens holder by fitting the aligning holes thereof against the aligning posts on the lens holder, with the respective tips of the aligning posts on the lens holder being each melted into a bolting structure to secure the photosensitive printed circuit board firmly in position on the lens holder, with an undergap existing between the photosensitive printed circuit board and the lens holder due to the stair-like bulged portions acting as a stopper against the photosensitive printed circuit board (pressing-straps 400 and 401 form a gap between the lens holder and the circuit board Figs. 3 and 4)."

However, Ting does not explicitly teach that the posts that connect the circuit board to the holder can be melted into bolting structures to secure the board in position.

In the same field of endeavor, Farrell et al. teaches a means of securing a lid assembly 10 to a substrate 20 forming a cover for a chip. Farrell et al. further teach that the alignment pins 18 are received in the alignment holes as shown at 32 and then the ends of the alignment pins can be melted to secure the lid (column 5 lines 8-16 and Fig. 9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the alignment pins that can be melted into bolt like structures found in Farrell et al. into the image-sensing module as the positioning

pegs taught in Ting, in order to reduce time, effort, and cost in assembly (column 6 lines 61-62).

Although Ting teaches a sealable though hole 202 (column 3 lines 46-48), the combination above does not explicitly teach how to seal the hole or the use of a light-impenetrable sealing layer which is used to seal the lens holder with the photosensitive circuit board.

In the same field of endeavor, Miyake teaches a pickup device that is made up of an optical element 3 and a pickup element 2 as seen in figure 14A. Miyake further teaches the use of a resin seal 11 that seals the optical element to the pickup element and may be formed of light blocking resin...preventing a ray of light from being introduced into a light receiving surface of pickup element 2 through any other portion than imaging lens 3a (column 7 lines 53-57).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the light blocking resin found in Miyake into the image sensing-module taught by the combination of Ting and Farrell et al. specifically into the through hole in order seal the circuit board to the lens holder and prevent any light from entering through anywhere other than the lens (column 7 lines 53-57) thus reducing any noise that may be caused by unwanted light.

Consider **claim 4**, Miyake further teaches that the aligning post are made of plastics (alignment pins 18, are made of LCP material column 4 lines 60-61).

Consider **claim 5**, Ting explicitly teaches "a method for fabricating a digital image capturing module (image-sensing module, Fig. 2), comprising:

preparing a lens holder (top cover 100 and bottom cover 200, Fig. 2), which has one side defined as a focusing plane, and which is formed with a plurality of aligning posts on the periphery of the focusing plane (the surrounding of the bottom cover 200 is provided with a plurality of positioning pegs 203, 204... column 3, lines 41-43, Fig 3) and is further formed with a plurality of stair-like bulged portions respectively beside the aligning posts (pressing straps 400 and 401 Fig. 4);

preparing a photosensitive printed circuit board (soft-type circuit board 600 in combination with the image-sensing transistor Fig. 3) which is formed with a plurality of aligning holes corresponding to the aligning posts on the lens holder (Fig. 3 shows the circuit board with holes that correspond to the posts on the holder and further line up with the positioning holes 103 and 104 column 3 lines 39-41);

mounting the photosensitive printed circuit board onto the lens holder by fitting the aligning holes in the photosensitive printed circuit board against the aligning posts on the lens holder (Fig. 3 shows the circuit board with holes that correspond to the posts on the holder and further line up with the positioning holes 103 and 104 column 3 lines 39-41 and Figs. 2-4), with an undergap existing between the photosensitive printed circuit board and the lens holder due to the stair-like bulged portions acting as a stopper against the photosensitive printed circuit board (pressing-straps 400 and 401 form a gap between the lens holder and the circuit board Figs. 3 and 4);

However, Ting does not explicitly teach that the posts that connect the circuit board to the holder can be melted into bolting structures to secure the board in position.

In the same field of endeavor, Farrell et al. teaches a means of securing a lid assembly 10 to a substrate 20 forming a cover for a chip. Farrell et al. further teach that the alignment pins 18 are received in the alignment holes as shown at 32 and then the ends of the alignment pins can be melted to secure the lid (column 5 lines 8-16 and Fig. 9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the alignment pins that can be melted into bolt like structures found in Farrell et al. into the image-sensing module as the positioning pegs taught in Ting, in order to reduce time, effort, and cost in assembly (column 6 lines 61-62).

Although Ting teaches a sealable though hole 202 (column 3 lines 46-48), the combination above does not explicitly teach how to seal the hole or the use of a light-impenetrable sealing layer which is used to adhere the lens holder with the photosensitive circuit board.

In the same field of endeavor, Miyake teaches a pickup device that is made up of an optical element 3 and a pickup element 2 as seen in figure 14A. Miyake further teaches the use of a resin seal 11 that seals the optical element to the pickup element and may be formed of light blocking resin...preventing a ray of light from being introduced into a light receiving surface of pickup element 2 through any other portion than imaging lens 3a (column 7 lines 53-57).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the light blocking resin found in Miyake into the image

sensing-module taught by the combination of Ting and Farrell et al. specifically into the through hole in order seal the circuit board to the lens holder and prevent any light from entering through anywhere other than the lens (column 7 lines 53-57) thus reducing any noise that may be caused by unwanted light.

Consider **claim 8**, Miyake further teaches that the aligning post are made of plastics (alignment pins 18, are made of LCP material column 4 lines 60-61).

8. **Claims 2-3 and 6-7** rejected under 35 U.S.C. 103(a) as being unpatentable over Ting in view of Farrell et al. in view of Miyake as applied to claim 1 and 5 respectively above, and further in view of **Vook et al. (US 2005/0007485)**.

Consider **claim 2**, the combination mentioned above explicitly teaches the digital image capturing module assembly of claim 1.

However, the combination does not explicitly teach that the photosensitive printed circuit board is a CCD-based photosensitive device.

In the same field of endeavor, Vook et al. teach a camera module with a lens holder 20 connected to a substrate 32 (e.g., a printed circuit board) paragraph [0020] line 9. Vook et al. further teaches that the image sensor 12 may be any suitable image sensing device, including a charge-coupled device (CCD) or a complementary metal oxide-semiconductor (CMOS) imaging device (paragraph [0020] lines 3-6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the CCD imaging device as the image pickup element on

the circuit board found in the combination above in order to have large pixels for high sensitivity and high frame rates providing better quality images.

Consider **claim 3**, the combination mentioned above explicitly teaches the digital image capturing module assembly of claim 1.

However, the combination does not explicitly teach that the photosensitive printed circuit board is a CMOS-based photosensitive device.

In the same field of endeavor, Vook et al. teach a camera module with a lens holder 20 connected to a substrate 32 (e.g., a printed circuit board) paragraph [0020] line 9. Vook et al. further teaches that the image sensor 12 may be any suitable image sensing device, including a charge-coupled device (CCD) or a complementary metal oxide-semiconductor (CMOS) imaging device (paragraph [0020] lines 3-6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the CMOS imaging device as the image pickup element on the circuit board found in the combination above in order to provide a small sized image sensor that has a low power dissipation.

Consider **claim 6**, the combination mentioned above explicitly teaches the method of claim 5.

However, the combination does not explicitly teach that the photosensitive printed circuit board is a CCD-based photosensitive device.

In the same field of endeavor, Vook et al. teach a camera module with a lens holder 20 connected to a substrate 32 (e.g., a printed circuit board) paragraph [0020] line 9. Vook et al. further teaches that the image sensor 12 may be any suitable image

sensing device, including a charge-coupled device (CCD) or a complementary metal oxide-semiconductor (CMOS) imaging device (paragraph [0020] lines 3-6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the CCD imaging device as the image pickup element on the circuit board found in the combination above in order to have large pixels for high sensitivity and high frame rates providing better quality images.

Consider **claim 7**, the combination mentioned above explicitly teaches the method of claim 5.

However, the combination does not explicitly teach that the photosensitive printed circuit board is a CMOS-based photosensitive device.

In the same field of endeavor, Vook et al. teach a camera module with a lens holder 20 connected to a substrate 32 (e.g., a printed circuit board) paragraph [0020] line 9. Vook et al. further teaches that the image sensor 12 may be any suitable image sensing device, including a charge-coupled device (CCD) or a complementary metal oxide-semiconductor (CMOS) imaging device (paragraph [0020] lines 3-6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the CMOS imaging device as the image pickup element on the circuit board found in the combination above in order to provide a small sized image sensor that has a low power dissipation.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. **Barman et al. (US 6,392,688)** teach a camera system that consists of a circuit bard attached to a lens holder with screws, wherein the circuit board has the image elements attached thereon.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Egan whose telephone number is (571) 270-1452. The examiner can normally be reached on Monday-Friday 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 270-1455. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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PATRICK N. EDOUARD
SUPERVISORY PATENT EXAMINER